AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1. (Previously Amended) A superconducting electric motor comprising:

a rotor assembly including:

a superconducting winding that, in operation, generates a flux path within the rotor assembly,

a laminated support member that supports the superconducting winding, and

an induction structure to support induction current for driving the motor in a steady-state induction mode;

the rotor assembly being configured to operate

in a synchronous mode at temperatures in which the superconducting winding exhibits superconducting characteristics, and

in a steady-state induction mode at temperatures in which the superconducting winding exhibits non-superconducting characteristics.

2. (Cancelled)

3. (Previously Amended) The superconducting electric motor of claim 1, wherein the induction structure is configured to allow the superconducting motor to generate a starting torque that is at least 50% of the rated torque in the steady-state induction mode.

4. (Previously Amended) The superconducting electric motor of claim 3, wherein the induction structure is configured to allow the superconducting motor to generate a peak torque that is approximately twice the rated torque in the steady-state induction mode.

5. (Previously Amended) The superconducting electric motor of claim 4, wherein a portion of the induction structure is spaced from the superconducting winding by a thermal isolation vacuum region.

6. (Previously Amended) The superconducting electric motor of claim 5, wherein said portion of the induction structure spaced from the superconducting winding by a thermal isolation vacuum region includes an electromagnetic shield member.

7. (Previously Amended) The superconducting electric motor of claim 6, further comprising a cryostat positioned between the thermal isolation vacuum region and the induction structure.

8. (Previously Amended) The superconducting electric motor of claim 6, wherein said electromagnetic shield member includes a conductive, non-magnetic material.

9. (Previously Amended) The superconducting electric motor of claim 4, wherein the induction structure includes the laminated support member.

10. (Previously Amended) The superconducting electric motor of claim 9, wherein the induction structure further includes an electromagnetic shield spaced from the superconducting winding by a thermal isolation vacuum region.

11. (Previously Amended) The superconducting electric motor of claim 10, wherein the laminated support member includes laminations lying in a plane parallel to magnetic field flux lines extending through the laminations during operation of the superconducting electric motor.

12. (Previously Amended) The superconducting electric motor of claim 1, further comprising:

a stator assembly electromagnetically coupled to the rotor assembly; and

an adjustable speed drive that provides an electrical signal to the stator assembly.

13. (Previously Amended) The superconducting electric motor of claim 12, wherein the adjustable speed drive provides the stator assembly with a signal at a first frequency to start the superconducting motor in the synchronous mode and provides the stator assembly with a signal at a second frequency to operate the motor in the steady-state induction mode, the second frequency being less than the first frequency.

14. (Previously Amended) The superconducting electric motor of claim 1, wherein the superconducting winding includes a high temperature superconductor.

15. (Previously Amended) The superconducting electric motor of claim 1, wherein the superconducting winding comprises a racetrack-shaped winding.

16. (Previously Amended) The superconducting electric motor of claim 1, wherein the support member comprises aluminum.

17. (Currently Amended) A superconducting electric motor comprising:

a rotor assembly including a superconducting winding having a high-temperature superconductor, the superconducting winding, in operation, generating flux within the rotor assembly, the rotor assembly configured to operate

in a synchronous mode at temperatures in which the superconducting winding exhibits superconducting characteristics, and

in a steady-state induction mode at temperatures in which the superconducting winding exhibits non-superconducting characteristics;

a cryostat surrounding the rotor assembly to maintain the superconducting winding at cryogenic temperatures; and

induction structure[~~, which~~] that, during operation, carries current at levels sufficient to allow the motor to operate in the steady-state induction mode, the induction structure including:

a laminated support member that supports the superconducting winding; and

an electromagnetic shield surrounding the cryostat and the superconducting winding.

18. (Previously Amended) The superconducting electric motor of claim 17, further comprising:

a stator assembly electromagnetically coupled to the rotor assembly; and

an adjustable speed drive that provides an electrical signal to the stator assembly.

19. (Previously Amended) The superconducting electric motor of claim 18, wherein the adjustable speed drive provides the stator assembly with a signal at a first frequency to start the superconducting motor in the synchronous mode, and provides the stator assembly with a signal at a second frequency to operate the motor in the steady-state induction mode, the second frequency being less than the first frequency.

20. (Previously Amended) The superconducting electric motor of claim 17, wherein the laminated support member includes laminations lying in a plane parallel to magnetic field flux lines extending through the laminations during operation of the superconducting electric motor.

21. (Previously Amended) A method of operating the superconducting electric motor of claim 1, the method comprising:

monitoring the temperature of the superconducting winding;

operating the superconducting motor in a synchronous mode at temperatures in which the superconducting winding exhibits superconducting characteristics; and

operating the superconducting motor in a steady-state induction mode at temperatures in which the superconducting winding exhibits non-superconducting characteristics.

22. (Previously Amended) The method of claim 21,

wherein operating the superconducting motor in the synchronous mode includes providing an electrical signal to a stator assembly electromagnetically coupled to the rotor assembly, the signal having a first frequency; and

wherein operating the superconducting motor in the steady-state induction mode includes providing a signal to the stator assembly at a second frequency, the second frequency being less than the first frequency.